

What is claimed is:

1. A method for calibrating a laser three-dimensional digitizing sensor, comprising:

defining a three-dimensional coordinator X-Y-Z;

5 providing a calibrating surface;

translating the calibrating surface along the Z axis to establish a first mapping table of a two-dimensional digital image to the Z coordinate.

10 rotating the calibrating surface by a predetermined first angle along the Y axis then translating along the Z axis to establish a second mapping table of the two-dimensional digital image to the Z coordinate according to the first mapping table.

15 2. The method for calibrating a laser three-dimensional digitizing sensor as claimed in claim 1 further comprising the following step:

rotating the calibrating surface by a predetermined second angle along the X axis then translating
20 along the Z axis to establish a third mapping table of the two-dimensional digital image to the Y coordinate according to the first mapping table.

25 3. An method for calibrating a laser three-dimensional digitizing sensor, comprising:

providing a base plane, a laser sensor generating a light plane, a flat block having a calibrating surface, a rotating axis perpendicular to the

base plane, a translating axis perpendicular to
the rotating axis;

projecting the laser light plane onto the
calibrating surface forming a bright line.

5 adjusting the laser light plane parallel to the base
plane.

adjusting the flat block such that the calibrating
surface is perpendicular to the translating
axis.

10 translating the flat block to a plurality of
predetermined first calibrating positions along
the translating axis then recording
corresponding bright line images made by the
laser sensor at each calibrating position.

15 rotating the flat block a predetermined angle along
the rotating axis, translating the flat block
to a plurality of predetermined second
calibrating positions along the translating
axis, then recording corresponding bright line
20 images made by the laser sensor at each second
calibrating position.

4. An apparatus for calibrating a laser three-
dimensional digitizing sensor, comprising:

a base plane;

25 a laser sensor fixed to the base plane to generate a
light plane.

a calibrating mechanism fixed to the base plane
having a flat block with a calibrating surface
thereon, wherein the light plane is projected

onto the calibrating surface forming a bright line such that the laser sensor senses and generates a digital image of the bright line.

5 5. The apparatus for calibrating a laser three-dimensional digitizing sensor as claimed in claim 4, wherein the calibrating mechanism further has a rotating portion including a rotating axis perpendicular to the base plane, wherein the flat block rotates along the rotating axis by the rotating portion.

10 6. The apparatus for calibrating a laser three-dimensional digitizing sensor as claimed in claim 5, wherein the calibrating mechanism further has a translating portion including a translating axis perpendicular to the rotating axis, wherein the flat
15 block translates along the translating axis by the translating portion.

20 7. The apparatus for calibrating a laser three-dimensional digitizing sensor as claimed in claim 4, wherein the rotating portion is a rotatable platform driven by a motor connected to a reduction mechanism.

8. The apparatus for calibrating a laser three-dimensional digitizing sensor as claimed in claim 4, wherein the translating portion is a linear guide way.